

An Investigation of the Effects of Emotional Experience Induction on Mirror Neurons System Activity with Regard to Spectrum of Depressive Symptoms

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Abstract : The aim of the present study was to assess the effect of emotional experience induction in the mirror neurons systems (MNS) activity with regard to the spectrum of depressive symptoms. For this purpose, at first stage, 449 students of Kharazmi University of Tehran were selected randomly and completed the second version of the Beck Depression Inventory (BDI-II). Then, 36 students with standard Z-score equal or above +1.5 and equal or equal or below -1.5 were selected to construct two groups of high and low spectrum of depressive symptoms. In the next stage, the basic activity of MNS was recorded (mu wave) before presenting the positive and negative emotional video clips by Electroencephalography (EEG) technique. The findings related to emotion induction (neutral, negative and positive emotion) demonstrated that the activity of recorded mirror neuron areas had a significant difference between the depressive and non-depressive groups. These findings suggest that probably processing of negative emotions in depressive individuals is due to the idea that the mirror neurons in motor cortex matched up the activity of cognitive regions with the person's schema. Considering the results of the present study, it could be said that the MNS provides a substrate where emotional disorders can be studied and evaluated.

Keywords : emotional experiences, mirror neurons, depressive symptoms, negative and positive emotion

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